

Patent Claims:

1. A process for producing a metal strip using a two-roller casting device (1), in which metal melt (16) is introduced into a melt pool (14), which is formed by two oppositely rotating casting rollers (2, 3) with casting-roller axes (4, 5) arranged parallel to one another and two side plates (6, 7) which bear against the end sides (17, 18) of the casting rollers, and in which an at least partially solidified metal strip (21) is conveyed out of a casting gap (19) formed by the casting rollers, characterized
  - in that the side plates (6, 7), in a first time interval ( $\Delta t_1$ ), are moved onto the end sides (17, 18) of the casting rollers in a first direction of movement parallel to the casting-roller axes (4, 5), and
  - in that the side plates (6, 7), in a second time interval ( $\Delta t_2$ ), are moved onto a portion of the lateral surfaces (10, 11) of the casting rollers in a second direction of movement parallel to the casting direction (G) in the casting gap (19).
2. The process as claimed in claim 1, characterized in that, in chronological order, the first time interval ( $\Delta t_1$ ) overlaps the second time interval ( $\Delta t_2$ ) at least in a subsection.
3. The process as claimed in claim 1, characterized in that, in chronological order, the second time interval ( $\Delta t_2$ ) overlaps the first time interval ( $\Delta t_1$ ) at least in a subsection.
4. The process as claimed in one of the preceding claims, characterized in that the first time interval ( $\Delta t_1$ ) starts before the second time interval ( $\Delta t_2$ ).
5. The process as claimed in one of the preceding claims, characterized in that the first time interval

$(\Delta t_1)$  starts when the metal melt is fed into the melt pool (14) or before this.

6. The process as claimed in one of the preceding  
5 claims, characterized in that the side plates (6, 7)  
are moved onto the casting rollers (2, 3) as a function  
of the wear properties of the refractory material used.

7. The process as claimed in one of the preceding  
10 claims 1 to 6, characterized in that the first time  
interval  $(\Delta t_1)$  is formed by three sections,

- a starting phase, in which the side plates (6, 7),  
during a time period of at most 90 sec, are moved  
onto the end sides (17, 18) of the casting rollers  
15 at a feed rate ( $v_{s1}$ ) which corresponds to material  
wear to the side plates of less than 50 mm/h,  
preferably from 1 mm/h to 30 mm/h,
- a transition phase, in which the side plates,  
during a period of at most 3 min, are moved onto  
20 the end sides of the casting rollers at a feed  
rate ( $v_{s2}$ ) which corresponds to material wear to  
the side plates of less than 20 mm/h,
- a steady-state operating phase, in which the side  
plates are moved onto the end sides of the casting  
25 rollers at a feed rate ( $v_{s3}$ ) which corresponds to  
material wear to the side plates of between  
0.2 mm/h and 4 mm/h.

8. The process as claimed in one of the preceding  
30 claims 1 to 6, characterized in that the first time  
interval  $(\Delta t_1)$  is formed by three sections,

- a starting phase, in which the side plates (6, 7),  
during a period of at most 90 sec, are pressed  
onto the end sides of the casting rollers with a  
35 contact pressure ( $p_{s1}$ ) which corresponds to  
material wear to the side plates of less than  
50 mm/h, preferably from 1 mm/h to 30 mm/h,
- a transition phase, in which the side plates,  
during a period of at most 3 min, are pressed onto

the end sides of the casting rollers with a contact pressure ( $p_{s2}$ ) which corresponds to material wear to the side plates of less than 20 mm/h,

5   • a steady-state operating phase, in which the side plates are pressed onto the end sides of the casting rollers with a contact pressure ( $p_{s3}$ ) which corresponds to material wear to the side plates of between 0.2 mm/h and 4 mm/h.

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9. The process as claimed in one of the preceding claims, characterized in that the second time interval ( $\Delta t_2$ ) starts at the latest 30 min, preferably as early as 10 min, after the start of the first time interval 15 ( $\Delta t_1$ ).

10. The process as claimed in one of the preceding claims, characterized in that the second time interval ( $\Delta t_2$ ) starts substantially at the start of the steady-state operating phase.

11. The process as claimed in one of the preceding claims, characterized in that the side plates, during the second time interval ( $\Delta t_2$ ), are moved/pressed onto 25 a portion of the lateral surface of the casting rollers at a feed rate ( $v_{v1}, v_{v2}$ ) or with a contact pressure ( $p_{v1}, p_{v2}$ ) which corresponds to material wear to the side plates of 2 mm/h to 20 mm/h, preferably 4.0 to 10 mm/h.

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12. The process as claimed in one of claims 1 to 10, characterized in that the side plates (6, 7), during the second time interval ( $\Delta t_2$ ), are moved intermittently, with movement phases and stationary 35 phases alternating and the stationary phases of the side plates not exceeding 30 min, preferably 5 min.

13. The process as claimed in claim 12, characterized in that the side plates (6, 7), during each movement

phase, are moved 0.01 to 2 mm, preferably 0.1 to 1 mm, onto a portion of the lateral surface (10, 11) of the casting rollers.

5 14. The process as claimed in one of the preceding claims, characterized in that the first time interval ( $\Delta t_1$ ) is directly preceded by a grind-in phase, in which the side plates, during a period of at most 120 sec, are pressed onto the end sides of the casting  
10 rollers at a feed rate or with a contact pressure which corresponds to mean material wear to the side plates of at least 10 mm/h, preferably at least 20 mm/h, the side plates, during a subsection of this grinding-in phase, if appropriate additionally being pressed onto a  
15 portion of the lateral surfaces of the casting rollers with a high contact pressure in the casting direction.

20 15. The process as claimed in one of claims 1 to 13, characterized in that the first time interval ( $\Delta t_1$ ) is preceded by a grinding-in phase in which mean horizontal material wear to the side plates of at least 0.3 mm is produced, this grinding-in phase being carried out with cold or preheated side plates, and if appropriate intermediate heating being carried out  
25 between this grinding-in phase and the start of the first time interval ( $\Delta t_1$ ).

30 16. A two-roller casting device having two casting rollers (2, 3), which are arranged parallel to one another and rotate in opposite directions, and two side plates (8, 9), which bear against the end sides (17, 18) of the casting rollers and are supported in side-plate carrying apparatuses (36), for carrying out the method as claimed in one of claims 1 to 14,  
35 characterized

- in that each side-plate carrying device (36) has horizontal guides (41) for implementing a feed movement of the side plate (8, 9) in the direction of the casting-roller axes (4, 5),

- in that each side-plate carrying device (36) is assigned a horizontal-adjustment device (42) for horizontal displacement of the side plate (8, 9) and a position-recording device (44) for recording the horizontal position of the side plate (8, 9),
- in that each side-plate carrying device (36) has vertical guides (38) for implementing a feed movement of the side plate (8, 9) in the casting direction (G), based on the casting gap (19),
- in that each side-plate carrying device (36) is assigned a vertical-adjustment device (39) for the vertical displacement of the side plate (8, 9) and a position-recording device (45) for recording the vertical position of the side plate,
- in that a computer unit (46) is connected, via signal lines, to the horizontal-adjustment devices (42), the vertical-adjustment devices (39) and the position-recording devices (44, 45) in order to transmit measurement and control signals.

17. The two-roller casting device as claimed in claim 16, characterized in that the horizontal-adjustment devices (42) and the vertical-adjustment devices (39) are assigned individual contact pressure measuring devices (47, 48) for determining the contact pressure of the side plates (8, 9) on the casting rollers (2, 3) in the horizontal and vertical directions, and the horizontal-adjustment devices (42) and the vertical-adjustment devices (39) are connected to the computer unit (46) via signal lines.

18. The two-roller casting device as claimed in claim 17, characterized in that the computer unit (46) is designed as an individual control circuit with a higher-level plant control system (51).

19. The two-roller casting device as claimed in one of claims 16 to 18, characterized in that the side-plate carrying device (36) is formed by a basic frame (40),

an adjustment frame (37) and a carrying frame (8, 9),  
the adjustment frame (37) being supported on the basic  
frame (40) via horizontal guides (41), and the carrying  
frame (8, 9) for the side plate (6, 7) being supported  
5 on the adjustment frame (37) via vertical guides (38),  
and the horizontal-adjustment device (42) being  
arranged between the basic frame (40) and adjustment  
frame (37) and the vertical-adjustment device (39)  
being arranged between the adjustment frame (37) and  
10 carrying frame (8, 9) for the side plate (6, 7).

20. The two-roller casting device as claimed in one of  
claims 16 to 19, characterized in that each side plate  
(6, 7) is assigned a heating device.